



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/637,458	08/07/2003	Gino Tanghe	920522-94653	3468
23644	7590	06/13/2006	EXAMINER	
BARNES & THORNBURG, LLP P.O. BOX 2786 CHICAGO, IL 60690-2786				BECK, ALEXANDER S
		ART UNIT		PAPER NUMBER
		2629		

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/637,458	TANGHE ET AL.	
Examiner	Art Unit		
Alexander S. Beck	2629		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 29 March 2006.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-28 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-28 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 07 August 2003 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. ____.
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: ____.

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of the amendment filed by the Applicant on 3/29/06, in which: the rejections of the claims is traversed. **Claims 1-28 are currently pending in U.S. Application Serial No. 10/637,458, and an Office Action on the merits follows.**

Response to Arguments

2. After carefully considering Applicant's arguments presented on pages 2-4, it appears Applicant's interpretation of *Sakamoto* (U.S. Patent No. 5,594,463, hereinafter SAKAMOTO) is different than that of the Examiner's interpretation provided in the previous Office Action (i.e., non-final Office Action mailed on 12/29/05).

For example, the independent claims of the instant application recite determining an environmental parameter; determining a first operational parameter, and changing a second operating parameter based on the determination of the environmental parameter and the first operational parameter. The disclosure of SAKAMOTO teaches/suggests, and as clearly illustrated in FIG. 8 in the form of a flow chart, determining an environmental parameter (e.g., S122); determining a first operational parameter (e.g., S110), and changing a second operating parameter based on the determination of the environmental parameter and the first operational parameter (e.g., S114).

3. **As to Applicant's uncertainty whether the light emitting elements in SAKAMOTO have a threshold voltage:** column 7, lines 43-46 of SAKAMOTO disclose a driving voltage of a minimum limit necessary for driving the light emitting elements (i.e., threshold voltage).

4. **As to Applicant's argument regarding the differences between the instant application and SAKAMOTO in that SAKAMOTO uses EL elements:** the Examiner has previously addressed this difference on page 3 of the previous Office Action.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. **Claims 1-3,5,15,16,18-21 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto (US 5,594,463 A).**

As to independent Claims 1,15 and 28, SKAMOTO teaches/suggests in FIGS. 5-6,8 a method and means of a control device for optimizing lifetime of a light emitting element, the light emitting element comprising a plurality of addressable discrete light emitting pixels, each of said light emitting pixels being driven by a supply voltage and a drive current provided by a current

driver, each light emitting pixel having a threshold voltage, the method and means comprising, for an light emitting pixel: means for determining an environmental parameter which affects aging of an light emitting pixel (SAKAMOTO: *col. 7, line 67 – col. 8, line 9*), means for determining a first operational parameter indicative of aging of the light emitting pixel (SAKAMOTO: *col. 7, lines 35-46*), and means for compensating at least partly for aging by changing a second operating parameter of the light emitting pixel based on the determination of the environmental parameter and the first operational parameter (SAKAMOTO: *col. 7, lines 51-57*).

SAKAMOTO does not disclose expressly wherein the light emitting element is an organic light emitting diode (OLED).

The Examiner takes Official Notice that the use of OLEDs as light emitting elements arranged in a matrix in a flat panel display is old and well-known in the art.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of SAKAMOTO such that OLEDs were used as light emitting elements.

The suggestion/motivation for doing so would have been because, among many advantages, it is well-known that OLEDs have a low cost of production.

As to **Claims 2 and 19**, SAKAMOTO teaches/suggests wherein compensation means for changing the second operational parameter is at least one of on-time of the current driver or supply voltage to the light emitting pixel (SAKAMOTO: *col. 7, lines 43-45, 51-57*).

As to **Claims 3 and 16**, SAKAMOTO teaches/suggests wherein means for determining the environmental parameter is obtained by measuring a temperature of the light emitting pixel (SAKAMOTO: *col. 7, line 66 – col. 8, line 9*).

As to **Claims 5 and 18**, SAKAMOTO teaches/suggests wherein the means for determining a first operational parameter is obtained by measuring a voltage across the current driver to determine the threshold voltage or normal operating voltage of the light emitting pixel (SAKAMOTO: *col. 7, lines 35-46*).

As to **Claim 20**, SAKAMOTO teaches/suggests a memory element for storing the measured temperature for at least one light emitting pixel (SAKAMOTO: *col. 6, lines 18-21*).

As to **Claim 21**, SAKAMOTO teaches/suggests a memory element for storing the measured voltage across the current driver for at least one light emitting pixel (SAKAMOTO: *col. 6, lines 18-21*).

2. Claims 4,7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto (US 5,594,463 A) as applied to Claims 1-3,5,15,16,18-21 and 28 above, and further in view of Numao (JP 2002278514 A, hereinafter NUMAO).

As to **Claims 4 and 17**, SAKAMOTO teaches/suggests wherein the means for determining an environmental parameter is a temperature measurement means for measuring an ambient temperature (SAKAMOTO: *col. 7, line 66 – col. 8, line 9*).

SAKAMOTO does not disclose expressly means for estimating a temperature of the light emitting pixel from the ambient temperature.

NUMAO, analogous in art to the teachings of SAKAMOTO, teaches/suggests means for measuring an ambient temperature and estimating a temperature of a light emitting pixel from the ambient temperature (*NUMAO: English abstract translation*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of SAKAMOTO such that a temperature of a light emitting pixel was estimated from an ambient temperature measured, as taught/suggested by NUMAO.

The suggestion/motivation for doing so would have been to better correct for the aging of a display by estimating the temperature of the light emitting elements (*NUMAO: English abstract translation*).

As to **Claim 7**, SAKAMOTO teaches/suggests storing the measured temperature for at least one light emitting pixel (SAKAMOTO: *col. 6, lines 18-21*).

3. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sakamoto* (US 5,594,463 A) as applied to Claims 1-3,5,15,16,18-21 and 28 above, and further in view of *Ochi et al.* (US 6,376,994 B1, hereinafter OCHI).

As to **Claim 6**, SAKAMOTO teaches/suggests measuring the voltage across the current driver to determine an amplitude change required for a voltage across the light emitting pixel to attain its threshold voltage or its normal operating voltage (SAKAMOTO: *col. 3, lines 5-11; col. 7, lines 35-46*).

SAKAMOTO does not disclose expressly wherein a change in time duration required is determined.

OCHI, analogous in art to the teachings of Sakamoto, teaches/suggests wherein, as an alternative to determining an amplitude required to attain a luminance (i.e., normal operating voltage), a change in time duration is determined to attain a luminance (OCHI: col. 11, lines 17-21,39-45; col. 11, line 60 – col. 12, line 9).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of SAKAMOTO such that a change in time duration of the current source (as opposed to a change in amplitude level of the current source as previously taught) was determined to attain a luminance (i.e., normal operating voltage), as taught/suggested by OCHI.

The suggestion/motivation for doing so would have been to provide an additional means for attaining a nominal luminance across a display, other than changing an amplitude level of a current source (OCHI: col. 11, lines 17-21,39-45; col. 11, line 60 – col. 12, line 9).

As to **Claim 8**, SAKAMOTO teaches/suggests storing the measured voltage across the current driver for at least one light emitting pixel (SAKAMOTO: col. 6, lines 18-21).

4. Claims 9,10,22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sakamoto* (US 5,594,463 A) as applied to Claims 1-3,5,15,16,18-21 and 28 above, and further in view of *Suzuki* (US 6,369,786 B1, hereinafter SUZUKI).

As to **Claims 9,10,22 and 23**, note the above discussion of SAKAMOTO with respect to independent Claims 1 and 15, respectively.

SAKAMOTO does not disclose expressly determining an optimal pre-charge required for each light emitting element, and the determining an optical pre-charge comprises determining a light emitting element drive voltage.

SUZUKI, analogous in art to the teachings of SAKAMOTO, teaches/suggests a flat panel display with light emitting elements arranged in a matrix comprising determining an optimal pre-charge required for each light emitting element, and wherein the determining of an optical pre-charge comprises determining a light emitting element drive voltage. (*SUZUKI: col. 4, lines 27-62*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of SAKAMOTO such that an optimal pre-charge required for each light emitting element was determined, and wherein the determining of an optical pre-charge comprised determining a light emitting element drive voltage, as taught/suggested by SUZUKI.

The suggestion/motivation for doing so would have been to suppress the influence of a stray capacitance developed at intersections of the electrodes in the matrix configuration (*SUZUKI: abstract*).

5. Claims 11-13,24,25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sakamoto* (US 5,594,463 A) as applied to Claims 1-3,5,15,16,18-21 and 28 above, and further in view of *Mazurek et al.* (US 5,805,117 A, hereinafter MAZUREK).

As to **Claims 11-13,24,25 and 27**, note the above discussion of SAKAMOTO with respect to independent Claims 1 and 15, respectively.

SAKAMOTO does not disclose expressly wherein the method is applied to a tiled display comprising a plurality of light emitting element display tiles, means for reducing temperature differences over two different light emitting element display tiles, and wherein reducing temperature differences over two different light emitting element display elements comprises adjusting a cooling.

MAZUREK, analogous in art to the teachings of Sakamoto, teaches/suggests a tiled display comprising a plurality of light emitting element display tiles (*MAZUREK: col. 6, lines 7-13*), means for reducing temperature differences over two different light emitting element display tiles, and wherein reducing temperature differences over two different light emitting element display elements comprises adjusting a cooling (*MAZUREK: col. 6, lines 7-13*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of SAKAMOTO such that the method was applied to a tiled display comprising a plurality of light emitting element display tiles and adjusting a cooling to reduce temperature differences over two different light emitting element displays, as taught/suggested by MAZUREK.

The suggestion/motivation for doing so would have been to provide one large display by tiling a plurality of displays (*MAZUREK: col. 6, lines 7-13*) and to maintain a relatively cool operating temperature among the plurality of displays (*MAZUREK: col. 6, lines 7-13*).

6. Claims 14 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sakamoto* (US 5,594,463 A) as applied to Claims 1-3,5,15,16,18-21 and 28 above, and further in view of *Hanaki et al.* (US 6,337,542 B1, hereinafter HANAKI).

As to **Claims 14 and 26**, note the above discussion of SAKAMOTO with respect to independent Claims 1 and 15, respectively.

SAKAMOTO does not disclose expressly means for setting intensity and contrast of light emitting pixels within predefined limits to reduce aging of the light emitting display element.

HANAKI, analogous in art to the teachings of Sakamoto, teaches/suggests a flat panel display with light emitting elements arranged in a matrix comprising means for setting intensity and contrast of light emitting pixels within predefined limits to reduce aging of the light emitting display element (*HANAKI: col. 7, lines 43-57*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of SAKAMOTO such that means for setting intensity and contrast of light emitting pixels within predefined limits to reduce aging of the light emitting display element were included, as taught/suggested by HANAKI.

The suggestion/motivation for doing so would have been to prolong the length of time in which the difference in degradation between light emitting elements is maintained small (*HANAKI: col. 7, lines 43-57*).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

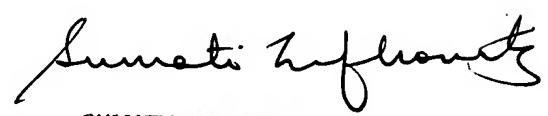
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Alexander S. Beck** whose telephone number is **(571) 272-7765**. The examiner can normally be reached on M-F, 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Sumati Lefkowitz** can be reached on **(571) 272-3638**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

asb
6/8/06



SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER